UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
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November 15, 2011

Dr. Gregory J. Thorpe, Ph.D., Manager
Project Development and Environmental Analysis Branch
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

SUBJECT: Federal Draft Environmental Impact Statement for the US 17, Hampstead Bypass and Military Cutoff Road Extension, New Hanover and Pender Counties, North Carolina; CEQ No.: 20110322; TIP Project Nos.: R-3300 and U-4751

Dear Dr.Thorpe:

The U.S. Environmental Protection Agency (EPA) Region 4 has reviewed the subject document and is commenting in accordance with Section 309 of the Clean Air Act (CAA) and Section 102(2)(C) of the National Environmental Policy Act (NEPA). The U.S. Army Corps of Engineers (USACE) and the North Carolina Department of Transportation (NCDOT) are proposing to extend Military Cutoff Road on new location for several miles (approximately 3.5 miles) as a 6-lane, median divided facility and connect to a 12 to 15 mile new location, multi-lane, median divided, bypass facility of US 17 Highway in New Hanover and Pender Counties, North Carolina. Both multi-lane facilities are expected to tie in with I-140 Wilmington Bypass (Also known as US 17, John Jay Burney Jr. Freeway). I-140 currently connects to US 17 (Market Street) with an interchange at Futch Creek Road.

EPA has been participating in the proposed project under the NEPA/Section 404 Merger process since 2005 and before the NCDOT proposed to combine the two facilities into one proposed project. According to EPA's records, the Purpose and Need (Concurrence Point - CP 1) for the combined roadway facilities was concurred on September 21, 2006. On August 23, 2007, EPA concurred on the Detailed Study Alternatives to be carried forward (Concurrence Point 2). Another CP 2 meeting was held on April 20, 2010, that further narrowed down the Detailed Study Alternatives. EPA concurred on CP 2A, Bridging and Alignment Review on May 27, 2010. EPA's technical review comments on the DEIS are attached to this letter (See Attachment A).

It should be noted that EPA and the U.S. Fish and Wildlife Service are listed on the DEIS cover as Cooperating Agencies. Section 1501.6 of the Council on Environmental Quality (CEQ) regulations should be further explored by the USACE and NCDOT for specific requirements of Cooperating Agencies.

EPA has rated the DEIS alternatives E-H+M1, O+M2, R+M1, U+M1 and U+M2 as 'Environmental Objections' (EO-2). EPA has rated detailed study alternative (DSA) U as "Environmental Concerns (EC-2). Those DSAs rated as EO-2 are those alternatives where there is a potential for significant environmental impacts to water supply wells and high quality waters of the U.S. that cannot be addressed without significant project modification or the development of other feasible alternatives. The DEIS fails to address the requirements of the Safe Drinking Water Act and the Clean Water Act with respect to current and future water supplies and the Military Cutoff Road extension impacts (i.e., DSA M1 and M2). The DEIS fails to identify avoidance and minimization measures and compensatory mitigation under Section 404 of the Clean Water Act for significant impacts to high quality waters of the U.S.

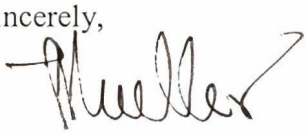
The rating of '2' indicates that DEIS information and environmental analysis is not sufficient and that additional information is required. EPA has substantial environmental concerns with respect to wetland and stream impacts and appropriate avoidance and minimization measures and compensatory mitigation. In addition, EPA also has environmental concerns for potential impacts to wetland mitigation and preservation sites, prime farmland impacts, impacts to threatened and endangered species, wildlife habitat fragmentation, and human environment impacts. EPA recommends that all of the technical comments in the attachment be addressed prior to the issuance of a Final EIS (FEIS). Furthermore, all relevant environment impacts that have not been disclosed in this document should be addressed in additional documentation prior to the next Merger decision point.

EPA has rated DSA U as having environmental concerns (EC-2) because it has significant environmental impacts to human and natural resources that have not been fully or accurately addressed in the DEIS and additional information is required. EPA believes that strictly combined with other transportation alternatives such a Transportation System Management (TSM) and Travel Demand Management (TDM), DSA U can possibly help meet the purpose and need. However, additional avoidance and minimization measures would be needed for DSA U to prevent degradation to protected and jurisdictional resources. EPA is requesting a conceptual mitigation plan prior to the selection of the Least Environmentally Damaging Practicable Alternative (LEDPA). EPA will not be able to concur on the Least Environmentally Damaging Practicable Alternative (LEDPA) until the significant environmental issues identified in the attachment are satisfactorily resolved.

Mr. Christopher Militscher of my staff will continue to work with you as part of the NEPA/Section 404 Merger Team process. EPA will continue to work with your staff and other Merger Team agencies on modifications to the DSAs and developing

alternatives that can potentially meet the stated purpose and need for the project study area. Should you have any questions concerning these comments, please feel free to contact him at Militscher.chris@epa.gov or (919) 856-4206 or (404) 562-9512. Thank you.

Sincerely,



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ATTACHMENT A
Draft Environmental Impact Statement
US 17 Hampstead Bypass and Military Cutoff Road Extension
New Hanover and Pender Counties
TIP Project Nos.: R-3300 and U-4751
Detailed Technical Comments

Purpose and Need for the Proposed Project

The NEPA/Section 404 Merger Concurrence Point (CP) 1 Purpose and Need statement is included in Appendix B of the DEIS. The stated purpose and need that Merger team representatives agreed to is as follows: "*The purpose of the project is to improve the traffic carrying capacity and safety of the US 17 and Market Street corridor in the project study area*". The DEIS includes an elaboration on the purpose and need on Pages 1-3 and 1-4. The discussion concerning safety is not fully examined. EPA believes that the severity of accidents and potential fatalities within the project study area may increase with a new location highway speed freeway. While overall 'minor' traffic accidents may be expected to decrease along US 17/Market Street with a new multi-lane bypass facility, FHWA and National Safety Council studies have shown that new location, high speed freeways in rural areas can potentially increase the severity of accidents. NCDOT safety studies also indicate that the total crash rate for US 17 between US 17 Wilmington Bypass (I-140) and Sloop Point Loop Road is below the 2005-2007 statewide crash rate for rural U.S. routes. Most of the proposed Hampstead Bypass is located substantially north of where the traffic and accident problems are located along existing US 17/Market Street.

This section of the DEIS includes an additional need concerning transportation demand. U.S. Census Bureau population data for New Hanover County and Pender County is provided. The DEIS states that with the population increase there is a corresponding growth in tourism and supporting services that resulted in a mixed-purpose traffic on US 17. This section of the DEIS does not specifically identify the correlation between population growth and the growth in tourism and supporting services. The population growth trends presented in Table 1-4 by decade for the periods of 2010-2020 and 2020-2030 are not reflective of more recent socio-economic trends. The large number of annual visitors for tourism does not specifically translate into increased population growth for the project study area. Considering the extensive wetland systems present in the project study area and that most upland areas have already been developed for retirement and seasonal second homes, future trends in permanent population growth are believed to be over estimated to justify new location facilities.

Figure 2 of the DEIS includes the 2008 Levels of Service (LOS) along some of the major routes in the project study area, including I-140/Wilmington Bypass, US 17/Market Street and US 17 to Sloop Point Loop Road at the northern project terminus. This figure is confusing as it only provides LOS from A to C, and then breaks out LOS D, E and F. Twenty-four (24) intersections are also provided with a LOS. EPA notes

that a majority of existing Military Cutoff Road within the project study area shown is LOS A-C. Additionally, EPA estimates that based upon peak hour NCDOT traffic estimates, approximately 66,500 feet of 123,375 total feet of existing roadways operate at a satisfactory LOS of A-C. Major sections of the existing multi-lane US 17 highway in Pender County and I-140/Wilmington Bypass show no current traffic capacity issues. Eight (8) of the 24 intersections also operate at LOS A-C.

EPA also notes the issue of local traffic versus regional through traffic. From Figure 2, it can be seen that while the I-140/Wilmington Bypass operates at an acceptable LOS, US 17 from College Road to Futch Creek Road (approximately 7 miles) operates at LOS F. Apparently, I-140/Wilmington Bypass is not drawing sufficient through traffic from downtown Wilmington roadways. The interchange of I-140/Wilmington Bypass and US 17 north of Porters Neck Road is rated with a LOS A-C. Similarly, the traffic problems (LOS F) south of the proposed extension of Military Cutoff Road would not expect to be improved with a new location, 6-lane freeway connecting to I-140 with a new interchange. EPA is uncertain how the new location, US 17/Hampstead Bypass of approximately 12 to 15 miles will improve traffic carrying capacity south of the proposed connections and new interchange with I-140/Wilmington Bypass. Except for one small area south of Scotts Hill Loop Road and a similarly small area by Topsail High School, US 17 between the I-140 interchange to the northern terminus operates at LOS D or better.

Figure 5 includes the projected 2035 LOS 'No-build'. Nearly all multi-lane roadways and intersections operate at LOS F based upon projected growth. The DEIS does not include the 2035 LOS in the project study area with the proposed new facilities (Build Scenario). This information is necessary to determine if after the 16 to 18 miles of new facilities are constructed that there will be any observable improvements to the existing facilities in the future. The project need appears to be based solely upon past population growth numbers in the two counties from 1990 to 2000 and 2000 to 2010. Section 3, Table 3-1 of the DEIS provides Population Characteristics for North Carolina, New Hanover County, Pender County, Wilmington, and 'Demographic Area'. The DEIS defines the demographic area as the area in and around the study area. The DEIS does not separate seasonal peak traffic numbers from the Average Annual Daily Traffic (AADT). The DEIS does not provide a break down by year of population growth rates within the demographic area. EPA would not anticipate that population growth rates from 2008 to present are at the same substantial percentage levels as was seen earlier in the decade. These 2035 population projections do not appear to take into account the project setting and the availability of other necessary infrastructure.

Overall, the information contained in the DEIS does not adequately support the purpose and need for multi-lane (6 lanes for Military Cutoff Road Extension and 4 lanes for the Hampstead Bypass) new location roadways, including a 12 to 15 mile freeway and a 3.5 mile, 6-lane boulevard. Other transportation initiatives, such as widening existing roadways, providing interchanges and improved intersection movements, adding turn lanes, providing 'traffic calming' measures and other Transportation Systems Management and Travel Demand Management measures could meet current and possible

future traffic problems. Regional traffic plans do not fully address the existing traffic conditions of the I-140/Wilmington Bypass and why the northern terminus was selected at its current location if it was not expected to draw regional and seasonal traffic from more congested local routes. Based upon NCDOT studies, I-140/Wilmington Bypass and its interchanges operate successfully at LOS A-C.

Recent purpose and need guidance by the Federal Highway Administration (FHWA) indicates that safety issues on existing facilities cannot always be addressed by the construction of new location facilities. Safety improvements along existing US 17 could be accomplished through a multiple of enhancements, including the addition of auxiliary turn lanes, restricting driveway access, improved signal timing, reducing the posted speed limit, increased signage, etc. Considering the rural and suburban nature of a majority of the project study area, new location and multi-lane facilities combined with existing safety concerns along US 17 will potentially increase the number and severity of accidents.

Preliminary and Detailed Study Alternatives

The DEIS includes discussions in Section 2.2 regarding Transportation Systems Management (TSM) Alternative, Travel Demand Management (TDM) Alternative and Mass Transit Alternatives. These transportation alternatives were not given full consideration and were eliminated from detailed study because they did not meet the purpose and need for the proposed new location projects. These alternatives were given only cursory consideration as individual alternatives and were never considered in combination along with other select improvements to existing roadways and intersections. Under the Mass Transit Alternative, EPA notes that NCDOT has concluded that there is a potential lack of demand. EPA requests a copy of the public survey and other traffic studies that support this conclusion. The DEIS also cites '*a diversity of trip origins and destinations*'. EPA requests a copy of the origin/destination (O/D) study that was prepared to support this position.

The DEIS discusses the N.C. Strategic Highway Corridor (SHC) vision plan adopted by the N.C. Board of Transportation in 2004 as part of the purpose and need for the project. The SHC was not included in the purpose and need that Merger team representatives concurred on in September of 2006. The extension of Military Cutoff Road is designated as a boulevard in the SHC plan. The Hampstead Bypass is depicted in the 2004 SHC vision plan as a new location freeway that follows the most westerly routes of some of the Detailed Study Alternatives (DSAs). Without fully examining other transportation alternatives or knowing the full extent of traffic problems on US 17/Market Street, it was determined in 2004 that new multi-lane routes would be the 'vision' for the corridor. The DEIS does not explain the correlation between the traffic problems on existing US 17/Market Street and the need for additional traffic carrying capacity, new multi-lane routes of travel that are at a substantial distance from the poor LOS areas and intersections, and areas with higher accident rates shown on Page 2-2. EPA does not believe that other 'non-new location' transportation alternatives either singly or in combination were given full consideration in the DEIS.

The DEIS includes a comparison of 23 preliminary corridor alternatives (Alternatives A through W and Z) for the Hampstead Bypass and 2 preliminary corridor alternatives (Alternatives M1 and M2) for the Military Cutoff Road Extension. Many of these preliminary study corridors were apparently identified by NCDOT to strictly avoid residential relocations within the proposed 300-foot corridor without any context sensitive regard to natural system impacts (e.g., Alternative W: 501.5 acres of wetland impacts and 63 residential relocations). The original list of preliminary study alternatives were narrowed down to 13 DSAs on August 23, 2007, at a Concurrence Point (CP) 2 Merger meeting. The list of 13 DSAs was further narrowed down on April 20, 2010, to 6 DSAs at a second CP 2 meeting. The current list of DSAs includes Alternatives E-H, O, R, U and M1 and M2. Alternatives E-H, O, R and U all share the same northern terminus by Sloop Point Loop Road and US 17. Alternatives M1 and M2 share a common southern terminus at the intersection of Military Cutoff Road and US 17. Combining the freeway alternatives and Military Cutoff Road extension alternatives represents 5 DSAs.

Alternatives E-H, O and R are located more than a mile to the west of the existing multi-lane US 17 facility for a majority of their length. Alternative E-H appears at its most westerly point to be located more than 3 miles from the existing US 17 corridor. Alternative U is considered to be a 'shallow' bypass and utilizes the existing corridor for approximately half of its length. Alternative U does not require a new location interchange along I-140/Wilmington Bypass. The DEIS design for DSA U indicates a 250 to 350 right of way required for this DSA. The DEIS does not provide a specific justification for this proposed width compared to the other alternatives under consideration. This right of way width is also contradictory to the environmental commitment included on page 1 of 2 of the "Green Sheets".

Alternatives M1 and M2 follow the same alignment for more than half of its length and then tie in two future I-140/Wilmington Bypass interchanges that are approximately one mile apart. The current DSAs combinations are included in the summary comparison in Table S-1. The 5 DSAs under consideration in the DEIS do not necessarily meet the requirements under 40 CFR Part 1502.14. Traffic carrying capacity and accident issues are located south of the I-140/Wilmington Bypass interchange along US 17. These issues were discussed during previous Merger team meetings and agencies were informed that the NCDOT would evaluate a full range of alternatives that would singly or in combination meet the purpose and need. The initially proposed project study area was expanded at the request of the USACE and other agency representatives to insure that a full suite of reasonable alternatives would be explored during the NEPA process.

Human Environment Impacts

Relocations

Residential and business relocations for the DSA E-H+M1, O+M2, R+M1, U+M1 and U+M2 are shown in Table S-1 and are as follows: 61/84, 60/84, 59/84, 93/106, and

95/106. The business relocations include non-profit 'displacements' (i.e., Relocations). There are no large business employers identified within the demographic area (Pages 3-2 and 3-3 of the DEIS).

EPA compared residential and business relocations for the DSAs to similar multi-lane facilities identified and analyzed under the 2010 Merger Performance Measures Environmental Quality Indicators (Baseline and 2009 data). For residential relocations, impacts per mile for the five DSAs were comparable in range to the Baseline and 2009 impact numbers (2.0 to 4.2 residential relocations per mile for Eastern new location projects, respectively). Business relocations are higher for all 5 DSAs compared to the Baseline and 2009 impact numbers. The DEIS included non-profit organizations in the business relocation totals. This is not a common NCDOT practice nor consistent with current NEPA/Section 404 Merger guidance. In addition, NCDOT also included a church, cemetery graves and a "0 employee" daycare in the Appendix C business relocations for U-4751 Alternatives M1 and M2. According to this report, 63 business relocations will result from either DSA M1 or M2. Appendix C appears to 'double count' certain business relocations. For DSA U, the report includes the relocation of 9 non-profit organizations, including 7 churches. Another 32 'displaced' businesses are identified for DSA U. Also included in the list of 32 business relocations for DSA U is a seasonal produce stand, a small business with 'name unknown', and a new business under construction (no name). This report identified a cell tower will be 'isolated' by this alternative as well as water tanks for the Belvedere Plantation subdivision. However, this relocation report does not identify at least two existing water supply wells operated by Cape Fear Public Utility Authority that will be impacted by both DSA M1 and M2 (Page 4-22 of the DEIS). EPA requests that a consistent and accurate analysis of residential and business relocations be provided to EPA and other Merger team agencies prior to the CP 3 LEDPA meeting and included in the FEIS.

Minority and Low-Income Populations: Environmental Justice

Table 4-1 identifies minority owned residential and business relocations, including the following: DSA EH+M1: 13 out of 61 residential and 11 out of 84 businesses; DSA O+M2: 11 out of 60 residential and 11 out of 84 businesses; DSA R+M1: 13 out of 59 residential and 11 out of 84 businesses; DSA U+M1: 36 out of 93 residential and 22 out of 106 businesses; DSA U+M2: 36 out of 95 residential and 22 out of 106 businesses. The Environmental Justice impacts based upon 2000 Census data are described on Pages 4-4 to 4-6 of the DEIS. The DEIS concludes that the proposed project is not expected to have disproportionately high and adverse human health and environmental effects on low income or minority populations.

Community Resources

Access to Prospect Cemetery is expected to be eliminated by either DSA M1 or M2. Page 4-2 of the DEIS states that access to Prospect Cemetery will be evaluated during final roadway design. EPA believes that this is a known impact resulting from the Military Cutoff Road Extension and access road options and associated impacts should

have been identified in the DEIS, including potential impacts to jurisdictional wetlands and streams. The DEIS identifies an impact under DSA M1 and M2 to a driving range (golf) under community facilities and services. This is a commercial business (#57 under Business Relocations) and not a public or non-profit community facility. The DEIS does identify that Holly Shelter Game Land is located in the project study area. However, unlike the driving range, it is a public and community facility as well as a gameland and preservation area. It is used extensively by the public. EPA requests that inaccuracies contained in the DEIS be addressed in the FEIS.

Mount Ararat AME Church, a historic property, is also expected to be impacted by DSA M1 or M2. In addition, the DEIS also indicates that grave sites in this cemetery could also be impacted but does not quantify the potential number of grave sites. In the Appendix C relocation report, it is provided that DSA U will reportedly impact 647+/- grave sites: Wesley Chapel United Methodist Church (395 +/- graves), McClammy and King Family Cemetery (17 +/- graves) and Pollock's Cemetery (235 +/- graves). The number of grave sites in the relocation report for DSA M1 and M2 under TIP project number U-4751 is not provided. Potential cemetery impacts for DSAs E-H, O and R are not identified in the report.

Ogden Park is described on Page 4-2 of the DEIS and discusses the park boundary that was designed to accommodate a future transportation corridor through the middle of the county park. In addition: "*Pedestrian access to existing multi-use path facilities and Ogden Park would be improved if pedestrian facilities are constructed.*" There is no identification of any proposed pedestrian facilities between the two sections of the park.

Additional details concerning non-profit relocations are provided in Section 4.1.2 of the DEIS. DSA E-H, O and R will impact 3 churches, including St. John the Apostle Catholic Church, Angel Food Ministries, and Topsail Baptist Church.

Hampstead is an unincorporated community in Pender County and is an area characterized as a home to four golf courses that are centered in large residential developments. The northern area of the project study area is characterized as being rural with natural areas preserved for recreation and education. The N.C. Wildlife Resources Commission manages Holly Shelter Game Land and North Carolina State University manages its blueberry research station. There are numerous other public and private mitigation sites and preserved lands in the project study area. Notably, there are several NCDOT mitigation sites (associated with the I-140/US 17/Wilmington Bypass project), including but not limited to the Plantation Road Site, Corbett Strip Residual Site and the Corbett Tract Mitigation Site.

Farmland Impacts

Impacts to prime farmlands are described in Section 4.3 on the impacts to the physical environment. Farming and agricultural practices are a human activity and represent businesses. In addition to N.C. Executive Order 96 on the Conservation of Prime Agricultural and Forest Lands, the Lead Federal Agency (i.e., USACE) is required

to comply with the Farmland Protection Policy Act (FPPA) of 1981 for those NEPA actions impacting prime farmland as defined under 7 CFR Part 658. Please see http://www.nrcs.usda.gov for more information.

Prime farmland impacts are quantified for each DSA in Table 4-5. Impacts are very specifically quantified as follows: DSA E-H+M1: 67.48 acres; DSA O+M2: 58.10 acres; DSA R+M1: 58.12 acres; DSA U+M1: 49.88 acres and DSA U+M2: 49.88 acres. Section 4.3.3 does not reference the required AD-1006 forms. EPA is unable to locate the forms in the DEIS appendices. EPA requests how these very exact impact numbers were calculated and if the Natural Resource Conservation Service (NRCS) completed AD-1006 forms for the DSAs. The DEIS does not provide any further information concerning potential N.C. Voluntary Agricultural Districts (VADs) or what measures to minimize farming impacts might be appropriate (e.g., Equipment access across dissected fields). According to the N.C. Department of Agriculture and Consumer Services, Pender County in 2008 was working towards establishing VADs.

Sections 3.3.3 and 4.3.3 of the DEIS fails to provide the relative importance of farming and other forest products for the Pender County economy and its employment contribution. Prior to the issuance of a FEIS, EPA recommends that supplemental information and analysis be provided regarding prime farmland and other agricultural land impacts resulting from the proposed project.

Noise Receptor Impacts

Impacts to noise receptors are described in Section 4.3 on the impacts to the physical environment. Human environment impacts are described in Section 4.1. Noise impacts are based upon receptor criteria to the human environment. Total noise receptor impacts are shown in Table 4-4. However, design year 2035 traffic noise levels that are expected to approach or exceed the NAC are different than from the table. Table S-1 includes the actual noise receptor impacts for each DSA: DSA E-H+M1:257 receptors; DSA O+M2: 236 receptors; DSA R+M1: 248 receptors; DSA U+M1: 310 receptors and DSA U+M2: 304 receptors.

Based upon the NCDOT Traffic Noise Abatement Policy, potentially 9 noise wall barriers are expected to meet the NCDOT's current feasibility and reasonableness criteria as identified on Page 4-11. The decision on the construction of the cost-effective noise barriers to provided needed noise abatement is being deferred by NCDOT until final design, more 'in-depth' Traffic Noise Modeling (TNM) and additional public involvement.

Historic Properties and Archaeological Sites

DSA U has 4 historic property adverse effects, including Poplar Grove, Scott's Hill Rosenwald School and Wesleyan Chapel united Methodist Church and Mount Ararat AME Church. The Mount Ararat AME Church impact (adverse effect) is associated with DSA M1 or M2. Thus, all of the DSAs have at least one adverse effect on a historic

property. There is no identified avoidance alternative. The impacts to historic properties from DSA U are based upon using a 'freeway' design along portions of existing US 17 and including parallel service roads. Some of the impacts to historic properties may be avoided or minimized if other reasonable designs are pursued during final design. Archaeological surveys have not been conducted for the DSAs and they are not proposed to be conducted until after the selection of the preferred alternative.

Hazardous Materials

Section 3.3.5 on hazardous materials is not accurate and should be corrected in the FEIS. Hazardous materials are regulated by the U.S. Department of Transportation (USDOT) under 49 CFR Parts 100-185. This section of the DEIS does not conform to other NEPA documents prepared by the NCDOT and reviewed by the EPA. Hazardous materials are identified in the 'Impacts to the Physical Environment' section and not in the 'Human Environment Impact' section.

Hazardous wastes are regulated under the Resource Conservation Recovery Act (RCRA) of 1976, as amended. Hazardous substances are regulated under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, as amended. The NEPA/Section 404 Merger Guidance provides additional details concerning these laws and requirements. Some of the identified 'geoenvironmental' sites described in this section may meet the cleanup requirements of more than one Federal statute. Only 5 of the 28 sites referenced in Section 3.3.5 are described in Section 4.3.5. These 5 sites are associated with DSA M1 and M2. There is no qualifying description of the phrase: "*low geoenvironmental impacts*". Details concerning the other 23 hazardous material sites is not provided in the DEIS. Supplemental information and analysis should be provided to EPA prior to the issuance of the FEIS. This future geotechnical investigation and evaluation should include the potential for existing hazardous material sites and underground storage tanks to contaminate shallow groundwater resources.

Natural Resources Impacts

Groundwater Impacts and Water Supply Wells

Sections 3.5.3 and 4.5.3 of the DEIS discuss impacts to the project area water supply. Groundwater aquifers are generally described in Section 3.5.3.1. The Cape Fear Public Utility Authority (CFPUA) is reported to have several existing and proposed well sites associated with the Nano Water Treatment Plant (NWTP). Section 4.5.3.1.1 identifies that DSA M1 and M2 cross two existing well sites operated by the CFPUA. Additionally, DSA M2 would also impact two additional existing CFPUA well sites (to total 4) and a proposed well site. DSA M2 is anticipated to impact a raw water line and concentrate discharge line that provides a connection to several anticipated well sites. The DEIS states that estimates provided by CFPUA include the loss of up to 6 million gallons per day (mgd) of anticipated future water supplies for the project study area. The DEIS lacks any specificity as to what the loss of the existing water supplies might be,

what the potential to feasibly relocate the wells might be, or what the costs might be should either DSA M1 or M2 be selected.

DSA U is also expected to impact 3 existing 'transient' non-community water supply wells in the vicinity of the proposed US 17 interchange at Sidbury Road and Scott Hill Loop Road. Transient non-community wells are described as being ones that serve 25 or more people at least 60 days out of the year at facilities such as restaurants and churches. The DEIS does not provide any additional information regarding these impacts, including current withdrawal rates, the availability of alternative drinking water supplies, the costs to owners to relocate wells, etc.

The DEIS does not address what the potential for contamination to existing well fields will be. The depth and distance of CFPUA well sites is not provided with respect to the alternatives under consideration. The potential threat from hazardous material accidents to other existing wellheads is not evaluated in the DEIS. Section 5.3.1.4 identifies 33 CFR 320.4(m) with respect to water supply impacts. EPA has provided the following specific USACE citation:

"Water is an essential resource, basic to human survival, economic growth, and the natural environment. Water conservation requires the efficient use of water resources in all actions which involve the significant use of water or that significantly affect the availability of water for alternative uses including opportunities to reduce demand and improve efficiency in order to minimize new supply requirements. Actions affecting water quantities are subject to Congressional policy as stated in section 101(g) of the Clean Water Act which provides that the authority of states to allocate water quantities shall not be superseded, abrogated, or otherwise impaired."

The full impacts to water supplies are not detailed in the DEIS. EPA believes that the construction of either DSA M1 or M2 will potentially violate this Clean Water Act requirement. NCDOT should also refer to the Safe Drinking Water Act for additional requirements. The DEIS fails to provide any potential avoidance or minimization measures or mitigation to address the loss of current and future water supplies in the project study area.

Jurisdictional Streams and Wetlands

Surface water impacts are included in Sections 3.5.3.2 and 4.5.3.2 of the DEIS. A total of 134 streams were identified in the project study area. Four (4) streams within one mile downstream of the project study area have been designated as High Quality Waters (HQW) and one stream within one mile downstream has been designated Outstanding Resource Waters (ORW). These five streams are Futch Creek, Old Topsail Creek, Pages Creek, an unnamed tributary to the Atlantic Intercoastal Waterway (AIWW), and Howe Creek, respectively. There are no Section 303(d) listed impaired waters in the project study area. The physical characteristics of all of the streams in the project study area are provided in Table 3-7.

Jurisdictional stream impacts for the DSAs are as follows: DSA E-H+M1: 24,531 linear feet or 4.6 miles; DSA O+M2: 13,842 linear feet or 2.6 miles; DSA R+M1: 24,571 linear feet or 4.6 miles; DSA U+M1: 15,450 linear feet or 2.9 miles and DSA U+M2: 8,786 linear feet or 1.7 miles. EPA compared stream impacts for the DSAs to similar multi-lane facilities identified and analyzed under the 2011 Merger Performance Measures Environmental Quality Indicators (Baseline and 2010 data). Stream impacts per mile for four of the DSAs were a magnitude or more above the 2004-2009 Baseline of 410 linear feet/mile and the 2010 Eastern new location value of 200 linear feet/mile. Except for DSA U+M2 of 523 linear feet/mile, the other 4 DSAs had impacts per mile as follows: 1,402 linear feet/mile (Greater than 3 times the Baseline); 834 linear feet/mile (Greater than 2 times the Baseline); 1,437 linear feet/mile (Greater than 3 times the Baseline); and 858 linear feet/mile (Greater than 2 times the Baseline). EPA does not believe that impacts to jurisdictional streams will be substantially reduced from these DEIS values following the selection of a LEDPA due to constructability issues within the project study area.

A total of 85 ponds and 286 jurisdictional wetland systems were identified in the project study area. The physical characteristics of these surface waters are detailed in Tables 3-8 and 3-9 of the DEIS. By EPA's estimate as many as 43 of the 85 ponds are classified as 'stormwater ponds'. NCDOT provided the DWQ Wetland rating for each of the 286 wetland systems. The DEIS did not provide wetlands ratings using the multi-agency accepted North Carolina Wetlands Assessment Methodology (NCWAM).

Jurisdictional wetland impacts for the DSAs are as follows: DSA E-H+M1: 246.1 acres; DSA O+M2: 384.4 acres; DSA R+M1: 297.4 acres; DSA U+M1: 218.4 acres and DSA U+M2: 283.8 acres. Impact calculations were based on preliminary design slope stake limits plus an additional 25 feet. EPA does not anticipate that final impact numbers to jurisdictional wetlands will be reduced from these specific impact estimates. Conversely, recent highway projects in the Coastal Plain of N.C. have shown an increase in wetland impacts following the selection of the LEDPA due to constructability issues brought forward by NCDOT (e.g., R-3620: Poorly drained soils requiring that the road bed be raised by 4 to 6 feet above natural ground elevation). EPA compared wetland impacts for the DSAs to similar multi-lane facilities identified and analyzed under the 2011 Merger Performance Measures Environmental Quality Indicators (Baseline and 2010 data). Similar to the stream impact comparisons, wetland impacts per mile for each DSA greatly exceeded the Baseline and 2010 Eastern new location project values of 2.1 acres/mile and 1.5 acres/mile, respectively. EPA estimates the following: DSA E-H+M1: 14.1 acres/mile; DSA O+M2: 23.2 acres/mile; DSA R+M1: 17.4 acres/mile; DSA U+M1: 12.1 acres/mile and DSA U+M2: 16.9 acres/mile. These wetland impacts per mile range from 6 to 10 times the 2004-2009 Baseline for an Eastern new location project. EPA does not believe that impacts to jurisdictional wetlands will be substantially reduced from these DEIS values following the selection of a LEDPA due to possible constructability issues and potential NCDOT safety concerns regarding 3:1 side slopes and the use of guardrails along a future high speed facility.

Section 4.5.4.1 contains a discussion on avoidance and minimization of impacts to jurisdictional resources. Minimum hydraulic bridges are recommended at Site #6, UT to Island Creek (Wetlands ISA and ISB) and Site #15 and Island Creek and UT to Island Creek (Wetlands HBSF and HBSH). Dual 200-foot bridges are recommended at Site #16, UT to Island Creek (Wetland HBSD2). Seventeen (17) major hydraulic crossings were identified during the CP 2A field meeting. Thirteen (13) structures are various sized reinforced concrete box culverts (RCBC) and one existing RCBC is proposed to be extended. The DEIS does not identify any additional avoidance and minimization measures to reduce impacts to jurisdictional streams and wetlands, such as reduced median widths, increased side slopes, the use of single bridges and tapered medians, retaining walls, reduced paved shoulders, etc.

Compensatory mitigation for unavoidable impacts to jurisdictional resources is very generally discussed in Section 4.5.4.1.2 of the DEIS. NCDOT proposes to seek on-site mitigation opportunities and utilize the N.C. Ecosystem Enhancement Program (EEP) for off-site mitigation needs. Considering the magnitude and severity of the impacts to high quality streams and wetlands, EPA requests a conceptual mitigation plan prior to the selection of a LEDPA and the issuance of a FEIS. There are no details as to what mitigation opportunities are available on-site and what credits or mitigation assets are available through the EEP. Considering the location of the proposed project and the presence of high quality waters of the U.S., the conceptual mitigation plan should be sufficiently detailed and provide for full compensation for lost functions and values to high quality resources.

During the Merger process, EPA also learned that several NCDOT mitigation sites associated with the I-140/Wilmington Bypass might be impacted from the proposed project, including the "Plantation Road Site". From Figure 10C of the DEIS, it appears that the "34-acre Residual Site" might also be impacted from several of the DSAs. From Figure 10D, it appears that the "Corbett Strip Residual Site" is probably going to be impacted from several of the DSAs. Discussions in the DEIS regarding the potential impacts to these NCDOT mitigation sites is included in Section 3.3.8.3. Impacts to these sites are not specifically identified in the summary table S-1 but are addressed Table 4.3.8.3. Additional information including credit/debit ledgers, restrictive covenants and easements, and other property records is being requested by EPA prior to the selection of a LEDPA and the issuance of a FEIS. NCDOT should avoid impacting approved mitigation sites that were required for compensation for previous highway project impacts (i.e., I-140/US 17 Wilmington Bypass).

Terrestrial Forest Impacts

Terrestrial forest impacts include Table S-1 summary of impacts for the DSAs are as follows: DSA E-H+M1: 518 acres; DSA O+M2: 512 acres; DSA R+M1: 472 acres; DSA U+M1: 406 acres and DSA U+M2: 455 acres. These impact numbers do not match the terrestrial community impacts shown in Table 4-9. Eliminating the impact estimates to 'maintain and disturbed communities' still does not provide for an accurate estimate of terrestrial forest impacts. The FEIS should identify how the terrestrial forest impacts

were calculated for each DSA and what natural communities were included in the estimates. EPA notes the comment concerning Executive Order 13112 on Invasive species and NCDOT's Best Management Practices (BMPs). EPA acknowledges the NCDOT invasive plant species list in Section 3.5.2.1.2 of the DEIS. The FEIS should identify specific BMPs to be followed to minimize the spread of invasive plant species following construction and provide detailed environmental commitments on how these BMPs are to be implemented. It would be useful to the public and decision-makers if NCDOT could provide previous project examples where these invasive species BMPs have cost-effectively resulted in the long-term elimination or reduction in invasive plant species following roadway construction activities. There are numerous Significant Natural Heritage Areas that are present in the project study area and the proposed new location alternatives represent a significant long-term threat to these unique habitats resulting from the introduction of aggressive and persistent roadside invasive plant species.

Threatened and Endangered Species

Sections 3.5.4.3 and 4.5.4.3 address protected species, including Federally-listed species under the Endangered Species Act (ESA). Considering the potential impacts to NCWRC's managed Holly Shelter Game Land, the DEIS should have also identified any State listed species under their jurisdictional and within the project study area. Twelve (12) Federally-listed threatened or endangered species are shown on Table 3-10. According to a copy of the U.S. Fish and Wildlife Service (USFWS) letter dated October 5, 2011, there are numerous unresolved issues concerning threatened and endangered species, including Red-cockaded woodpecker (RCW) and issues associated with the endangered plants and NCDOT mitigation sites that will be impacted from DSAs E-H, O, and R. EPA's defers to the NCWRC and USFWS concerning specific requirements involving Section 7 of the ESA and other wildlife issues. Generally, EPA has significant environmentally concerns regarding wildlife habitat loss and fragmentation resulting from most of the DSAs, including E-H, O and R. Potential animal/vehicle collisions involving new location, multi-lane, high speed facilities in rural areas in close proximity to game lands and other preservation areas need to be analyzed and studied prior to the issuance of a FEIS.

Other Environmental Issues

EPA notes the other DEIS comments and issues concerning Air Quality including transportation conformity, Mobile Source Air Toxics (MSATs), FEMA floodplain impacts, socio-economic issues, land use plans, pedestrian and bike path issues, gameland and preservation area direct impacts and indirect and cumulative effects (ICE) resulting from the proposed project.

Regarding socio-economic issues, EPA acknowledges the following DEIS comment: *"It is anticipated that the proposed project will enhance long-term access and connectivity opportunities in New Hanover and Pender County and will support local, regional and statewide commitments to transportation improvement and economic*

viability". Enhanced long-term access and connectivity are not part of the purpose and need for the proposed project that EPA and other Merger Team agencies agreed with in 2006 .

Impacts to Holly Shelter Game Land, Corbett Tract Mitigation Site, Corbett Tract Residual Strip, Plantation Road Site, 34-Acre Residual Site, 22-Acre Residual Site, and Blake Savannah are detailed for the different DSAs in Table 4-7. Impacts to Holly Shelter Game Land and the 22-Acre Residual Site should be removed from the table as all of the impacts are 'zero' to these two areas. The total impacts for the DSAs are as follows: DSA E-H+M1: 4.43 acres; DSA O+M2: 42.94 acres; DSA R+M1: 5.01 acres; DSA U+M1: 3.24 acres and DSA U+M2: 34.40 acres. Most of the impacts are associated with DSA M2 and are to the Plantation Road and 34-Acre Residual mitigation sites. These significant impacts should be included in Table S-1 and future impact tables.

EPA does not agree with the assumptions and conclusions in the indirect and cumulative effects section of the DEIS. The analysis cites travel time benefits without providing the specific travel time savings or other traffic analyses required to make such a claim. The analysis ignores a critical component: water supply within the project study area and the importance it may have on current and future development and land uses. Furthermore, the qualitative ranking in Tables 4-18 and 4-19 are not supported by actual data or facts. These ranking appear to be very subjective and based upon past trends and not upon more recent socio-economic factors. The relationship of the information contained in Table 4-20 compared to the proposed project is not made clear in Section 4.6. Considering the significant impact predicted for the project study area watersheds, EPA is requesting a review copy of the indirect and cumulative quantitative water quality impacts analysis that was requested by the NCDWQ and prior to the issuance of a FEIS.